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ABSTRACT

The primary purpose of this study was to identify those factors that most accurately predict a student's intention to complete a degree in a college of agriculture. Specific research objectives were to identify similarities and differences of college of agriculture freshmen from predominately urban backgrounds, as compared to those in an institution with students predominately from rural backgrounds; determine the relationship between a student's intention to change colleges and majors and selected demographic variables; and determine if a combination of perceived effect components could explain the variance in students' retention plans. Freshmen in the two Midwestern institutions who comprised the study differed in background and levels of agricultural experience. Students who had experience in agriculture, completed high school agriculture courses, were members of the Future Farmers of America and/or 4-H, and lived in a rural setting were more likely to complete a degree in a college of agriculture than were freshmen who have not had those experiences. By contrast, students with higher class ranks were more likely to drop out of colleges of agriculture than were students with agricultural experience or students who had completed high school agriculture coursework. The best predictors of student retention in the colleges involved in this study were the students' prior experience in agriculture and their enrollment in high school agriculture programs. (Contains 16 references.) (Author/MM)

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Abstract

The primary purpose of this study was to identify those factors that most accurately predict a student's intention to complete a degree in a college of agriculture. Specific research objectives were to identify similarities and differences of college of agriculture freshmen from predominately urban backgrounds, as compared to those in an institution with students predominately from rural backgrounds; determine the relationship between a student's intention to change colleges and majors and selected demographic variables; and determine if a combination of perceived effect components could explain the variance in students' retention plans. Freshmen in the two Midwestern institutions who comprised the study differed in background and levels of agricultural experience. Students who had experience in agriculture, completed high school agriculture courses, were members of the FFA and/or 4-H, and lived in a rural setting were more likely to complete a degree in a college of agriculture than were freshmen who have not had those experiences. By contrast, students with higher class ranks were more likely to drop out of the colleges of agriculture than were students with agricultural experience or students who had completed high school agriculture coursework. The best predictors of student retention in the colleges involved in this study were the students' prior experience in agriculture and their enrollment in high school agriculture programs.

Introduction and Theoretical Framework

One of the major problems plaguing college administrators nationwide is the recruitment and retention of quality students who are likely to enter the agricultural industry upon graduation. Precluding this problem were the dramatic decreases in enrollment in colleges of agriculture in reaction to the farm crisis of the early 1980s. During this period of time, enrollments in agriculture programs at both the high school and university levels underwent major changes (Dyer & Osborne, 1994). In no areas were the repercussions greater than in those states whose economies were most closely tied to the agricultural sector. Hardest hit were states in the Midwest whose agricultural economies depended upon the successful production and marketing of grain crops which were tied to government subsidies. Likewise in the Midwest, some of the most drastic decreases in high school agriculture program enrollments were reported. In Illinois, enrollments decreased by over 60% (Illinois State Board of Education, 1993), while Iowa experienced a decrease of nearly 53% from 1976 to 1990 (Iowa Department of Education, 1997). Over the same time period, enrollment in Illinois and Iowa public schools decreased by 25% and

20%, respectively, indicating that other factors were contributing to the attrition in agriculture program enrollments (United States Department of Education [USDE], 1996).

As the effects of the decreases in high school enrollments rippled to the university level, Manderscheid (1988) reported a 24% decline in Land Grant University agriculture enrollments and a 13% decrease in non-Land Grant University agriculture enrollments from 1978 to 1988. Paralleling this decrease in university agriculture program enrollments were cutbacks in faculty positions. According to the American Association for Agricultural Education (AAAE), university agricultural education faculty membership decreased from a 1984 high of 326 members to a 1999 low of 226 members, a decrease of 31% (AAAE, 1999).

Interestingly, as universities were responding to decreased student numbers by downsizing agricultural education departments and programs, high school enrollments in agriculture courses were rebounding. Several states modernized agriculture curricula as suggested by the National Research Council (1988) and reaped almost immediate results in the form of increased student numbers. At an enrollment of nearly 3/4 million students in 1993-94 (USDE, 1996), high school agricultural education program enrollments have recovered to the record pre-recession enrollments. Given the national decrease of over 20% in the number of school age children (USDE), the case could easily be made that agricultural education at the high school level is actually healthier than at the pre-recession era.

At the university level, colleges of agriculture are also reporting increased enrollments. Litzenberg, Whatley, and Scamardo (1992) reported that with the exception of the North Central Region, agricultural enrollments had recovered to early 1980 levels. According to USDE enrollment figures, 1992 enrollments in colleges of agriculture nationwide have increased by 18.9% over the 1981 enrollment of 802,000 students (USDE, 1996). However, the demographic composition of today's college of agriculture students has changed in many instances from that of the 1980s. Dyer, Lacey, and Osborne (1996) reported that 66.4% of freshmen in the College of Agriculture at the University of Illinois at Urbana-Champaign (UIUC) were from urban areas. Even in Iowa, a state with a low population density, Scofield (1995) noted an increase in urban backgrounds of College of Agriculture freshmen at Iowa State University (ISU) in 1994.

According to Russell (1993), this lack of agricultural background and/or experience jeopardizes the long-term future of the agricultural industry. Russell warned of an impending "brain drain" in the agricultural industry if the loss of individuals trained and experienced in agriculture continues.

With an increasing number of freshmen coming from urban backgrounds, and/or situations in which they have no pre-college training in agriculture, new problems have emerged. Dyer et al. (1996) reported a loss of nearly 11 million dollars of instructional money due to the failure to retain students beyond their freshmen year. This loss was largely due to students with higher academic credentials, but no agricultural experience, being admitted to a college of agriculture, then dropping out before graduation.

The overall problem continues to be how to accurately identify and retain students who are likely to complete a program of instruction and seek employment in the industry of agriculture. This research seeks to address this problem.

The conceptual model for this research emphasized the need to study those factors that influence a student's selection and pursuit of a field of study and corresponding career choice. Fishbein and Ajzen (1975) provided the theoretical framework for this study. They determined that intentions to participate in an activity could be predicted based upon knowledge, observation, or other information about some issue. This suggests that a person's intent to pursue study in a field of agriculture, or to become actively involved in an agricultural career, may be predicted by analyzing his/her beliefs about agriculture. Greenwald (1989) supported this theory, reporting that individuals with positive attitudes toward a subject or situation tend to evaluate them positively.

Purpose

The primary purpose of this study was to identify those factors that most accurately predict a student's intention to complete a degree in a college of agriculture. Specific research objectives were to:

1. Identify similarities and differences of college of agriculture freshmen from predominately urban backgrounds, as compared to those in an institution with students predominately from rural backgrounds.

2. Determine the relationship between a student's intention to change colleges and majors and selected demographic variables (gender, grade point average, ACT score, geographical background, experience in agriculture, enrollment in high school agriculture, membership in FFA and 4-H, and class rank).

3. Determine if a combination of perceived effect components could explain the variance in students' retention plans.

Procedures

The study employed a descriptive-correlational research design. Data were compiled from college of agriculture freshmen at Land Grant universities in two Midwestern states – Illinois and Iowa – during the 1995-96 and 1996-97 school years ($\underline{N}$ = 1008). These states were selected because of differences in admission procedures of freshmen (UIUC has a capped enrollment whereas ISU utilizes an open enrollment philosophy), because of the close relationship between agriculture and local and state economies, and because of the variance in geographic background of the students who comprise the population.

Student rosters from each college of agriculture's admissions office served as the population frame for the study. Students were surveyed in freshmen introductory courses and were mailed questionnaires as outlined by Dillman (1978). A total of 725 (71.9%) usable instruments were collected. Ten percent of the non-respondents in each phase of the study were randomly selected

and completed questionnaires by telephone. No significant differences were found in data obtained from non-respondents and that obtained from initial participants. Therefore, data were generalized to the entire population.

Data-gathering instruments were developed by the researchers. Content and face validity were determined by a panel of experts from college of agriculture faculty. Part I of the instrument contained demographic information, close-ended, and partially close-ended items. Part II identified attitudes of students toward the field of agriculture. A five-point Likert-type scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree) was used for the 21 items comprising Part II of the questionnaire. The instrument was pilot tested using 12 freshmen students not enrolled in a college of agriculture and 11 sophomore and junior college of agriculture students ($\underline{n} = 23$). Part II of the instrument was divided into three constructs: Attitudes Toward Agriculture as an Area of Study, Attitudes Toward High School Agriculture Programs, and Attitudes Toward University Agriculture Programs. Reliability estimates were determined for the three constructs using Cronbach's Alpha ($\underline{r} = .85, .78, .88$, respectively). Data were analyzed using SPSS for Windows. Descriptive statistics, including measures of central tendency and variability, were used to simplify and characterize data. Regression analysis was used to explain variance in factors influencing students' intentions. Independent variables included class rank, ACT score, grade point average, gender, geographic background, experience in agriculture, membership in 4-H and FFA, and enrollment in high school agriculture programs. The dependent variable was student intention to change college. An alpha level of .05 was set a priori.

Results

Objective 1: *Identify similarities and differences of freshmen in a college of agriculture with students predominately from urban backgrounds, as compared to those in an institution with students predominately from rural backgrounds.*

The populations of students in the two colleges differed in gender, ethnicity, and agricultural background/experience. As noted in Table 1, most students in the urban setting (UIUC) were female and Caucasian. Whereas most students in the rural setting (ISU) were also Caucasian, the sample differed in that a majority of the rural students were male, with an almost non-existent presence of African-American, Hispanic, or Asian ethnicity/ancestry.

Less than one in five students in the Illinois study indicated that they had completed high school agriculture courses. By contrast, 54% of respondents in Iowa reported having completed at least one high school agriculture course. Of the Illinois students who had completed courses in high school agriculture programs, over three-fourths rated the program "Good." Only 6.9% rated the programs as "Poor." In Iowa, 62.1% of the respondents who had completed high school agriculture classes rated the programs as "Good" while only 7.5% rated the quality "Poor." The major reason listed in both states for not enrolling in high school agriculture courses was that no program was offered.

Less than 14% of the students in Illinois indicated they had been FFA members in high school compared to almost half (47%) of the respondents in Iowa. Approximately one-fourth of

the Illinois respondents reported membership in 4-H as compared to over half of the Iowa respondents.

Table 1
Demographic Characteristics of Freshmen Enrolled in Colleges of Agriculture

	ISU	UIUC
	% (n)	% (n)
Gender		
Female	43.0 (167)	55.6 (179)
Male	57.0 (222)	44.4 (143)
Ethnicity		
Caucasian	95.3 (369)	90.7 (283)
Asian	1.0 (4)	5.4 (17)
African-American	1.3 (5)	1.9 (6)
Hispanic	0.5 (2)	1.3 (4)
Other	1.8 (7)	0.6 (2)
High School Agriculture Completed	54 .0(214)	18.4 (59)
FFA Member	47.0 (182)	13.8 (44)
4-H Member	55.2 (214)	27.3 (86)
Geography		
Urban (over 10,000)	23.7 (94)	66.4 (215)
Small towns (<10,000) & Rural areas	28.8 (114)	11.4 (37)
Farm	47.5 (188)	22.2 (72)
Experience in Agriculture		
Paid	5.6 (22)	25.8 (66)
Unpaid	11.6 (46)	18.0 (46)
Both Paid and Unpaid	66.4 (263)	25.0 (64)
None	16.4 (65)	31.2 (80)
Attitudes Toward Programs of Study		
Plan to Change Colleges	5.9 (22)	39.4 (195)
Plan to Change Majors	17.3 (61)	48.2 (66)

In a review of literature, Scofield (1995) reported a largely rural student population at ISU, whereas Dyer et al. (1996) reported a majority of Illinois students to be from urban or suburban backgrounds. This study confirmed those earlier findings. In Illinois, two-thirds (66.4%) of the respondents reported they were from large or medium urban areas whereas three-fourths of the Iowa respondents reported farm, rural, or small town backgrounds.

Iowa freshmen also indicated that they had considerably more experience in agriculture prior to admission to the College of Agriculture. Roughly two-thirds (66.4%) of Iowa students indicated they had both paid and unpaid experiences in agriculture, whereas only 16.4% indicated they had no agricultural experience prior to enrolling. By comparison, 25.8% of the

students in Illinois reported paid work experience in agriculture, whereas 31.3% reported no prior experience of any kind with agriculture.

Students' attitudes toward their major area of study differed markedly between the two institutions involved in the study. In the Illinois school, 39.4% of the freshmen indicated they planned to leave the College of Agriculture. An additional 48.2% indicated they were contemplating a change of majors before graduating. By comparison, only 5.9% of the respondents at ISU indicated they were planning a change of college. Only 17.3% were contemplating changing majors.

The one area of similarity was in the question asking students to list what they most liked about their respective College of Agriculture. Students in both institutions listed the "friendly atmosphere" in the college and the "faculty" as their first and second choices, respectively.

Objective 2: *Determine the relationship between a student's intention to change colleges and majors and selected demographic variables (gender, grade point average, ACT score, geographical background, experience in agriculture, enrollment in high school agriculture, membership in FFA and 4-H, and class rank).*

Tables 2 and 3 present the correlation matrix for variables under consideration (experience in agriculture, gender, geographic background, grade point average, ACT score, membership in FFA, membership in 4-H, class rank, intent to change colleges). Ethnicity/race was dropped from consideration due to lack of variance (IL = 90.7% Caucasian, 1.9% African-American, 5.4% Asian, 1.3% Hispanic; IA = 97.2% Caucasian, 1.3% African-American, 1.0% Hispanic, and .5% Asian).

Table 2
Intercorrelations of Demographic Variables of UIUC College of Agriculture Freshmen

Variable	Intercorrelations									
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	Y
Class Rank (X_1)	1.00	-.167	-.576	.086	-.548	-.471	-.416	-.344	-.293	.375
ACT (X_2)		1.00	.183	.035	.020	-.013	-.061	-.057	-.011	-.082
GPA X_3			1.00	.003	.292	.144	.204	.124	.041	-.162
Gender[a] (X_4)				1.00	-.225	-.233	-.124	-.284	-.256	.027
Geography[b] (X_5)					1.00	.523	.541	.420	.318	-.266
Agricultural Experience[c] (X_6)						1.00	.511	.468	.398	-.355
4-H member[d] (X_7)							1.00	.442	.371	-.301
FFA member[d] (X_8)								1.00	.857	-.294
High school Agriculture[d] (X_9)									1.00	-.318
Change College[e] (Y)										1.00

[a] 1 = male, 2 = female

[b] 1 = Large metropolitan (>100,000); 2 = Urban (50,000 – 99,999); 3 = Medium urban (10,000 – 49,999); 4 = Small town (<10,000); 5 = Rural, but not farm; 6 = Farm

[c] 1 = none, 2 = paid experience, 3 = unpaid experience, 4 = both paid and unpaid experience

[d] 1 = no, 2 = yes

[e] 1 = no, 2 = maybe, 3 = yes

In the Illinois phase of the study (Table 2), moderate associations (Davis, 1971) were identified between the criterion variable (student intention to change college) and the variables class rank (r = .375), experience in agriculture (r = -.355), membership in 4-H (r = -.301), and enrollment in high school agriculture classes (r = -.318). Low correlations were found between the criterion variable and GPA (r = -.162), geographical background of students (r = -.266), and membership in FFA (r = -.294).

In the College of Agriculture at UIUC, students with higher class ranks (i.e., 1st in their high school class) were more likely to drop out of the College than were students ranked lower in their classes or who had a lower grade point average. However, students with experience in agriculture, who were enrolled in high school agriculture classes, who were 4-H or FFA members, or who were from less populated areas were more likely to complete their degrees within the College.

Weaker relationships were identified in the Iowa portion of the study, however, the same trends prevailed. Class rank had only a negligible relationship to students' intention to change college (r = .041). Low associations were found between the criterion variable and geography (r = .170), experience in agriculture (r = -.251), membership in 4-H (r = -.146), membership in FFA (r = -.173), and enrollment in high school agriculture (r =-.140).

Table 3
Intercorrelations of Demographic Variables of ISU College of Agriculture Freshmen

Variable	Intercorrelations									
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	Y
Class Rank (X_1)	1.00	-.355	-.648	.071	.186	-.093	-.121	-.090	-.061	.041
ACT (X_2)		1.00	.473	.147	.221	-.179	-.026	-.136	-.184	.078
GPA (X_3)			1.00	.247	.089	-.089	.009	-.024	-.052	.016
Gender[a] (X_4)				1.00	.209	-.292	-.003	-.077	-.077	.119
Geography[b] (X_5)					1.00	.581	.476	.423	.434	.170
Agricultural Experience[c] (X_6)						1.00	.370	.423	.438	-.251
4-H member[d] (X_7)							1.00	.354	.298	-.146
FFA member[d] (X_8)								1.00	.814	-.173
High school Agriculture[d] (X_9)									1.00	-.140
Change College[e] (Y)										1.00

[a] 1 = male, 2 = female
[b] 1 = Large metropolitan (>100,000); 2 = Urban (50,000 – 99,999); 3 = Medium urban (10,000 – 49,999); 4 = Small town (<10,000); 5 = Rural, but not farm; 6 = Farm
[c] 1 = none, 2 = paid experience, 3 = unpaid experience, 4 = both paid and unpaid experience
[d] 1 = no, 2 = yes
[e] 1 = no, 2 = maybe, 3 = yes

Objective 3: *Determine if a combination of perceived effect components could explain the variance in students' retention plans.*

Stepwise multiple regression was used to determine which, if any, of the variables were significant predictors of students' intentions to remain enrolled in their respective college of agriculture. Table 4 indicates that students' prior experience in agriculture and enrollment in high school agriculture programs were significant predictors of their intention to continue their education in the UIUC College of Agriculture, explaining 17% of the variance. Likewise, Table 5 indicates that students' prior experience in agriculture was the only significant predictor of their intention to matriculate in ISU's College of Agriculture, but explained only 7% of the variance.

Table 4
Multiple Regression of Student Intent on Variables of Interest[a] of UIUC Freshmen.

Predictor	B	SE B	β	t
Experience in Agriculture	-7.300	.035	-2.060	-2.060*
High School Agriculture	-.674	.300	-2.249	-2.249*

Note. $R^2 = .17$. *p<.05.
[a] = experience in agriculture, high school agriculture, geographic background, membership in FFA, membership in 4-H, class rank, ACT score.

Table 5
Multiple Regression of Student Intent on Variables of Interest[a] of ISU Freshmen.

Predictor	B	SE B	β	t
Experience in Agriculture	-3.700	.018	-.136	-2.010*

Note. $R^2 = .07$. *p<.05.
[a] = experience in agriculture, high school agriculture, geographic background, membership in FFA, membership in 4-H, class rank, ACT score.

Conclusions and Recommendations

Care should always be taken in generalizing findings to populations other than that which was studied. With this limitation in mind, and based upon the findings of this study, the following conclusions were drawn and recommendations made:

Freshmen in the two institutions comprising the study differed in background and levels of agricultural experience. University of Illinois students were generally more urban or suburban in

their background, lacked agricultural experience, had little or no high school agriculture classroom experience, and were more ethnically diverse than were the Iowa respondents. By contrast, Iowa State University students generally had farm, rural, or small town backgrounds and considerable agricultural experience, including enrollment in high school agriculture programs.

Students who have experience in agriculture, completed high school agriculture courses, were members of the FFA and/or 4-H, and lived in a rural setting are more likely to complete a degree in a college of agriculture than are freshmen who have not had those experiences. By contrast, students with higher class ranks are more likely to drop out of the colleges of agriculture than are students with agricultural experience or students who have completed high school agriculture coursework.

The best predictors of student retention in the colleges involved in this study were the students' prior experience in agriculture and their enrollment in high school agriculture programs. These colleges should recruit students who have agricultural experience, whether that experience is gained through background or high school agriculture course work.

This study should be replicated on a national level with an emphasis on explaining a greater percentage of variance in students' reasons for changing colleges and/or majors. In addition, a follow-up study should be conducted to determine if students followed through with plans to either continue in their degree programs or to transfer from, or drop out of, their major or college.

Implications

Many colleges of agriculture identify and recruit students based solely upon ACT score, grade point average, and class rank. If similar to the colleges participating in this study, these institutions are likely using the wrong criteria for selection – if student retention is a goal. When identifying and recruiting students for admission to colleges of agriculture, more emphasis should be placed on students' agricultural experience and/or transcript evidence of enrollment in high school agricultural education courses. Likewise, if the mission of a college of agriculture is to produce graduates for entry into the agricultural industry, valuable resources are wasted if those graduates do not complete their program of study.

Bekkum (1993) noted that the agricultural industry places considerable importance on the background and experience of graduates. However, students are not entering some colleges of agriculture with the agricultural experience desired by prospective employers. If colleges of agriculture are to be a reliable source of students, those colleges must either be more selective in their recruitment of students or design a curriculum to provide agricultural experience at the university level. Where the mission was once the education of students <u>in</u> agriculture, the emerging trend may be to educate students <u>about</u> agriculture.

References

American Association for Agricultural Education (1999). Raw membership data. In Directory of University Faculty in Agricultural Education. J. E. Dyer (Ed.) University of Missouri, Columbia.

Bekkum, V. A. (1993). Experience needs of College of Agriculture graduates as perceived by business and industry. NACTA Journal, 37(2), 48-51.

Davis, J. A. (1971). Elementary survey analysis. Englewood Cliffs, NJ: Prentice Hall.

Dillman, D. A. (1978). Mail and telephone surveys: The total design method. New York: John Wiley and Sons.

Dyer, J. E., & Osborne, E. W. (1994, February). The influence of science-based agriculture courses on attitudes of Illinois guidance counselors. Paper presented at the 48th Annual Central Region Research Conference in Agricultural Education, St. Louis, MO.

Dyer, J. E., Lacey, R., & Osborne, E. W. (1996). Attitudes of University of Illinois College of Agriculture freshmen toward agriculture. Journal of Agricultural Education, 37(3), 43-51.

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior. Reading, MA: Addison-Wesley Publishing.

Greenwald, A. G. (1989). Attitude structure and function. Hillsdale, NJ: Erlbaum Associates.

Illinois State Board of Education. (1993). [Agriculture program enrollment statistics]. Unpublished raw data.

Iowa Department of Education (1997). (Iowa Agricultural Education Information). Unpublished raw data.

Litzenberg, K. K., Whatley, S. S., & Scamardo, J. (1992). 1991 U.S. enrollment for agriculture and renewable natural resources. NACTA Journal, 36(2), 4-7.

Manderscheid, L. V. (1988). Undergraduate educational opportunities in the face of declining enrollments. American Journal of Agricultural Economics, 70(5), 985-993.

National Research Council. (1988). Understanding agriculture: New directions for education. Washington, DC: National Academy Press.

Russell, E. B. (1993). Attracting youth to agriculture: How colleges of agriculture can expand their role. Journal of Extension, 31(Winter), 13-14.

Scofield, G. G. (1995, March). College of agriculture new student profile. Paper presented at the Central Region 49th Annual Research Conference in Agricultural Education, St. Louis, MO.

United States Department of Education, National Center for Education Statistics (1996). Digest of Education Statistics. Washington, D.C.